"I hear desktop publishing is
helping people do some amazing things.

But what does it mean to me?"

Simple.

It means you can do all this without leaving your desk.

The work you have just seen is real.

"One night we accidentally discovered desktop publishing for our whole office."

Bill Hill, Graphic Designer
David Kelley Design

Something always happens the night before a big presentation. Maybe it's the mixture of apprehension and adrenaline. Maybe it's the excitement. Maybe it's the pressure. What's for certain is that it happened one July night at David Kelley Design in Palo Alto, California.

Two product-design engineers and a graphic designer were putting together a product-design report for a client.

They'd been working on it for a month, and the end was in sight. Rickson Sun had written the report. Matt Herron had done the engineering drawings.

And it happened.

The graphic designer, Bill Hill, looked at the words from one engineer, and at the drawings from the other, and said, "Let's put 'em together on the Macintosh." Fortunately, Rickson had written the report with a Macintosh word-processing program – and Matt had prepared the drawings on the Macintosh, too.

"I did the drawings on the Macintosh," says Matt, "because we were doing a lot of variations on a theme, so I could do a basic drawing and modify it very easily. I started to do the work by hand, but I'm not really a great sketcher. But with the Macintosh I could easily scale the drawings larger and smaller."

Apple Deskto

Then Bill sat down with Rickson, and with a page-layout program. It allowed them to arrange the type and pictures on the screen, looking exactly the way they would look when printed on the LaserWriter.
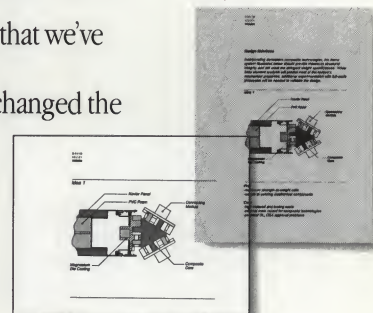
"With a Macintosh and a page-layout program," says Bill, "I can look at the visual elements, and I know I can shrink this, move that, put a rule here, make this type bold or italic – all the graphic-design decisions that an engineer probably would not make, but a graphic designer would. It's very flexible. In fact, Rickson was able to make changes to his copy up to the very last minute, because he got to see how it related to the drawings.

"We started out to put a report together. But we ended up creating a template for reports that we've used ever since. Now everybody in the office can use the format we created that night."

But they did more that night than simply affect how the firm's presentations look. They changed the way they approach all their projects.

Bill explains, "We started to rely on our Macintoshes more and more, because so much work was being generated on them.

"In fact, this week we had to order four more."

"You can buy a copy of *USA Today*, and I'd defy you to tell me which graphics were done on Macintosh and which were done by hand."

Richard Curtis, Managing Editor, Graphics and Photography
USA Today

That challenge comes from the managing editor for graphics and photography of the newspaper that has built its success largely on the quality of its graphics.

His name is Richard Curtis.

He has a Macintosh™ computer on his desk.

So does his graphics editor, J. L. Albert.

And so do all 12 artists in his graphics department.

Says Curtis, "At the time we found Macintosh, we had been looking at graphics systems that cost up to a million dollars.

"But it was the Apple® LaserWriter® that got us really interested. So we bought one, and a couple of Macintosh computers, and introduced them to our artists. Soon they were printing their drawings on the LaserWriter and pasting them directly into the paper.

"Then about a year or so ago, we started to see the possibilities of sharing graphics between us at *USA Today*—which is Gannett's biggest newspaper—and all 92 of our other newspapers.

"For instance, an artist who draws a consumer price index chart here at *USA Today* is producing a chart that all our newspapers could use." Adds Albert, "We're creating an electronic graphics library for all our papers.

"It'll enable papers that don't have artists to have the services of a full art department. We'll send artwork from our Macintosh, over the phone lines, to their Macintosh. Just about every paper in the Gannett group has a Macintosh."

But the decision to use Macintosh was made as much for training reasons as for graphics.

Explains Curtis, "What's overlooked by people interested in buying computers for graphics is the time it takes to train people. That is just a tremendous cost. Not just because of the training dollars, but also because of the training *time*. A person's just not productive while they're learning—and we can't afford to have people spend six months learning to use a computer.

"With Macintosh, we found that we could stick artists in a room with an instruction book, a Macintosh, and the cassette tape that comes with it. And three days later they'd create graphics of publishable quality. Without any formal instruction.

"In reality, we didn't even show them how to turn it on. We didn't show them how to insert the disk, we didn't show them how to draw with the mouse, or anything. But three days later they were putting graphics in the paper.

"And three weeks later they were experts."

"No matter what your deadline, something always changes at the last possible moment."

Gabriel Boehmer, Public Relations Assistant
Georgia-Pacific

In June 1986, Dave Odgers, Public Relations Director at Georgia-Pacific's Western Wood Products Manufacturing Division in Eugene, Oregon, needed an assistant to produce the monthly employee newsletter. He found Gabriel Boehmer. And he got a lot more than an assistant. He got a one-man army—a guy who was burning to impress the man who hired him. Until he saw the newsletter budget, which was supposed to cover writing, typesetting, layout, pasteup, and photography.

Gabe decided something had to give. He didn't have the money for all that. He'd have to do it all himself.

But what about the typesetting? He couldn't do *that* himself.

He had to find a better way, so he went to his local computer store. He'd heard about Apple Desktop Publishing. And when he saw how good it looked, he had to have it.

"I had been concerned about the quality of the newsletter. But I knew Dave was concerned about cost, so I showed him that the system would pay for itself very quickly," Gabe explains. "When he saw the dollar figures, he was convinced, too."

After the system arrived, Gabe found that it solved another big problem.

"The Macintosh has given us the capability to completely remake the newsletter in 24 hours, so we aren't locked into decisions that we made yesterday. If something changes today, I don't have to worry about my budget."

It is real work,
from real people,
with real problems,
who've found
a real solution.

DAVID
KELLEY
DESIGN

Page 7

Introduction
How To Use This MicroLink User Guide

Of course, we think this User Guide provides everything you'll need to become an a... MicroLink user. It is designed to be used while you are sitting at your micro.

Opinion

Open the guide almost anywhere and you'll notice that the top page carries illustrations (mostly screen illustrations) while the text appears on the bottom page.

To use this guide effectively, open the front cover and fold it under the back cover. This will prop up your guide slightly and make it easier to read while you are working at your micro.

Place the opened guide directly in front of your micro so that the top page rests against your micro. As you work through the procedures, you'll be able to compare the display on your monitor with the screens as they should appear.

Remove the keyboard plate from the pocket back of this guide and over the function keys left side of your keyboard. You are now ready to us MicroLink.

WGBH Nuclear Age Storyboard

Fission

| Video | Narr |
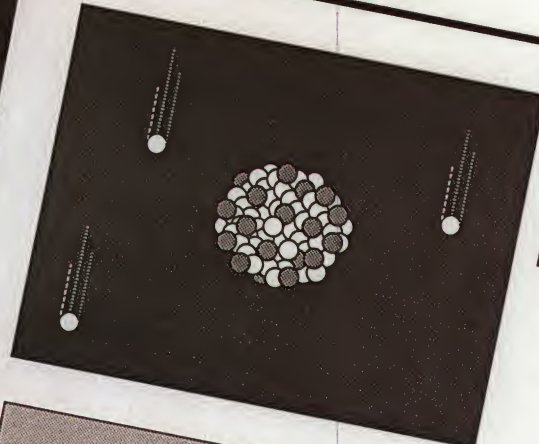
00:00

Fission
nucle
by neu

Slow motion action of
nucleus undulating wh
bombarded by neutron.

00:07

and split into t

Fast Copy

• Newport and Toledo city councils have signed an agreement with the District 4 Council of Governments to promote economic development in the two Oregon coastal cities. The plan puts special emphasis on developing the plywood mill and surrounding property donated by G-P to the city of Toledo earlier this fall.

• Before 1986 is over, Americans will have used record amounts of plywood and lumber for a single year, predicted the leaders of two forest products trade groups. C.B. Stevens, retiring chairman of the American Plywood Association, said this year's plywood production will be 25 billion square feet—a 10 percent increase from 1985, which was the industry's previous record-high production year. Meanwhile, H.A. Roberts, president of the Western Wood Products Association, said 46.1 billion board feet of lumber will be used in the United States in 1986, the third consecutive record year for consumption.

• A new government report indicates that trees on national forests managed by the U.S. forest service are growing at only half their potential of 32 billion board feet per

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NIAGARA MOHAWK

Next meter reading Jan 20

Account number:
1620 3114 004 218 4

Billing Summary

If you have questions about this bill, please call, write or come to our office nearest you:
300 Erie Boulevard West
Syracuse, NY 13202
Phone: (315) 474-5911

CAR RT SORT ••CR 09
George Smith
60 Franklin Street
Johnston, NY 12095

Electric service . . . .
Gas service . . . .
Total charges . . . .

Last total bill . . . .
Payment received (thank you) .
Balance . . . .
Late payment charge ($50.00 x
This month's budget amount . . .

▶ Total amount due . . . .

Budget Plan totals after this pa

Budget payments (5) . . . .
Actual charges . . . .
Balance to your credit . . . .

Care & Share Energy Fund.

Help take the chill out of winter for those
contribution to Care & Share. For every
Mohawk will add $1. Please see enclose

For more information, call us at 474-5000

- - - - - - - - - - - - - - - - - - - -

Account number:
1620 3114 004 218 4

Geo

"Why pay the cost of typesetting if you can do it with your Macintosh?"

You get them once a month, in the mail. To you, they're just bills.

But to Ken Morris, Executive Vice President at the New York communications design firm of Siegel & Gale, they are complicated design problems that demand elegant solutions.

One day in 1986, Siegel & Gale got a call from Niagara Mohawk, the gas and electric company serving northern New York State. Their problem was that the New York State Public Service Commission had mandated that all utility companies had to simplify their bills and make them understandable in plain English.
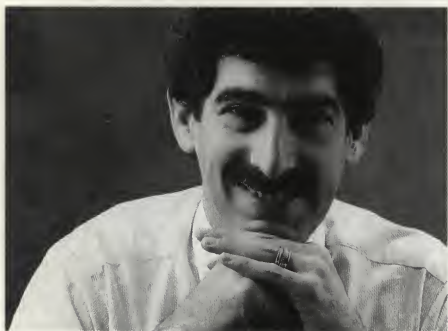
Ken Morris, Executive Vice President
Siegel & Gale

So Niagara Mohawk turned to Siegel & Gale, because designing simplified communications is one of their specialties.

And Siegel & Gale turned to their Macintosh computers and LaserWriter printers, because they wanted to look at a lot of design alternatives quickly.

Says Morris, "With Macintosh, we design right on the screen. We're able to do layouts with real type, but without the expense of typesetting. So instead of doing one or two design variations, we can now do 10 or 15 in less time and for a lot less money. And we can provide our clients with a much more finished-looking product, even at the first presentation."

But to the people at Siegel & Gale, designing a bill that is understandable to consumers means more than just moving type around. "We don't do cosmetic changes," explains Morris. "When we begin, we really rip the problem apart and rebuild the communication from the ground up. We assume nothing.

"We do the problem solving, we do the reorganization, we do the design, we do the writing. And we do it all with our Macintoshes.

"If you're going to produce state-of-the-art work, you need state-of-the-art production equipment. And when I saw what Aldus's PageMaker page-design program, a Macintosh, and a LaserWriter could do, I said, 'We've got to have these things.'"

"The animators are in Japan. And I don't speak Japanese. But everybody understands pictures."

Paul Souza is a senior designer at WGBH, the public television station in Boston. Because budgets are tight, his problem is to make the best use of the funding he gets for projects. "Our motto is 'Do more with less,'" says Souza. Following that philosophy, he got a Macintosh for himself, and one for each of the designers in the department. And today they can certainly do more than ever before.

In Souza's case, that means stretching his budget across a continent. And an ocean.

Paul Souza, Senior Designer
WGBH

Right now he's working on a project called "The Nuclear Age," a 13-hour TV series on the history of nuclear arms policy, that is to be broadcast in 1989.

"An unusual situation has arisen," says Souza. "We have a coproduction arrangement with NHK—Japan National Broadcasting. As part of the arrangement, we will design and storyboard all the animation for the series, and NHK will produce the animation.

"I had to work out a communications link to send my storyboards to the people in Japan. Right now, we're sending them with our fax machines. And I've found that Macintosh is a very good tool for doing that. Using a pencil to draw storyboards doesn't work very well with fax machines. But the bit-mapped graphics of the Macintosh are really clear."

And the result is a much more understandable storyboard for the animation people in Japan.

Which means Souza won't have to spend a lot of time explaining his storyboards on the phone.

Which could stretch his budget even further.

Which means he might have a couple more Macintosh computers for his next big project.

"Good. Fast. Cheap. Pick three."
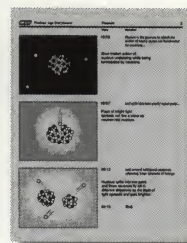
*Nancy Taub, Manager of MicroLink Publications
Chemical Technologies Corporation*

A year ago, Nancy Taub, Manager of Publications at Chemical Technologies Corporation, a subsidiary of Chemical Bank, had a big problem.

She had to produce a 200-page manual for an unreleased business software package—called MicroLink—for the IBM PC XT. And though the software itself was changing every day, the manual had to be ready the day the software was. It had to include illustrations. It had to look typeset. And there was no budget for either. But Taub did it—with a lot of help from her two designer/writer/illustrator associates, Lynn Yost and Leo Wong, along with three Macintosh computers and a LaserWriter printer.

Explains Taub, "We were really writing a manual about software that was still in development."

"And," adds Yost, "because it was for small businesses, we had to assume that this was the first time they had ever seen a computer. So we had to find some way to present the information so they could understand it."

"Our office is full of IBM equipment," says Wong. "But the only way to accomplish what we had to accomplish was with illustrations and clear layouts. And the only computer that could do that was Macintosh."

Three people. Three months. Two hundred pages.

Nancy Taub grows enthusiastic when she talks about the solution to their predicament. "We learned that we could have all three sides of the impossible triangle—good, fast, and cheap. And usually, you only get two of those. You can't get all three. You just *can't.*

"But we did."

op Publishing

"I saw the output. It was incredible. I said 'I know I can sell this.'"
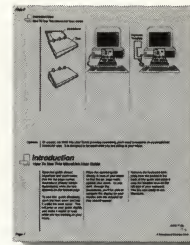
*Stacy Murray, President
HardCopy*

When Stacy Murray saw his first LaserWriter page at a computer store in Los Angeles, he was impressed. He was excited. And he had an idea.

But he had one reservation: "Can this little printer really stand up to day-in, day-out commercial use and abuse?"

He bet it would. So Mr. Murray quit his job as a banking consultant, rented a storefront and copy machines, and ordered two Macintosh computers and a LaserWriter printer. Across the windows of the new business, called HardCopy, was a banner that read, "Coming soon, laser printing."

At first, five or six customers a day would come in and ask, "What in the world is laser printing?"

He showed them. Word got out.

Says Mr. Murray, "Our business has expanded fast, because people are amazed by how good we can make them look on paper.

"Now we get between 100 and 150 people through our door every day. And we're planning an expansion that will let us serve major corporations."

Customer demand for laser-printed reports, proposals, and presentations keeps Mr. Murray's staff of seven quite busy. In fact, he already has an annex set up just for his LaserWriter operation.

Did he win the bet?

"You bet I did. My LaserWriters are turning out between three and four thousand pages a month.

"And you know what? They've never let me down. Not once."

"Tell me what I need."

You have just witnessed the way seven real people have improved their work and the way it looks, with Apple Desktop Publishing.

They did it without having to pay for the time, aggravation, and costs of typesetting, production, and all those other services they used to send out for.

Because they did it at their desks.

Chances are, they're a lot like you. And chances are, the real problems they've solved are a lot like the ones you're facing today.

So if you're beginning to like the looks of desktop publishing, you're in for a pleasant surprise when you see exactly how it's done.

A Macintosh.

Desktop publishing begins with – and was begun by – a remarkably sensible, very advanced personal computer named Macintosh.

Like most computers, it can work with words and numbers. But at the heart of Macintosh is a graphics processor second to none.

It was the first to bring words and pictures together on-screen. And with its partner, the Apple LaserWriter printer, it was the first to bring words and pictures together on paper.

A LaserWriter.

It's the printer that started the desktop publishing revolution, by producing typeset-looking documents at a fraction of the cost of typesetting.

It's small enough to fit on a desk, but the LaserWriter contains some of the most sophisticated circuitry in computerdom. Which enables it to print a full page of graphics at 300 dots per inch. With hundreds of built-in type fonts, sizes, and styles to choose from.

And it's got PostScript, from Adobe Systems, built right in. PostScript is what makes the LaserWriter understand Macintosh. Which means it understands that the way you put your words, numbers, and pictures on the screen is the way you expect to see them on paper.

And software.

The LaserWriter and Macintosh wouldn't be leaders of the revolution without the services of the world's most useful, understandable software.

There's lots of it. For producing documents ranging from papers to presentations, and from memos to manuals.

For writing.

Word processing is extinct. Or almost.

Just imagine a plain old word-processing program. With the freedom to pick any type face, size, or style you want. Add a spelling checker. Put your logo and pictures where they make sense.

It isn't word processing anymore. It's document processing. And you can get it only with one kind of computer.

For presenting.

Want to convince a roomful of skeptical clients with your presentation? Make the type big. Add a custom border. Make your points clear, then use your LaserWriter to print them as transparencies.

To put a picture into your Mac just add a scanner to your system. will appear on the screen in abou

For drawing.

Want to draw technical illustrations faster? Get your hands on a Macintosh drawing program. They do for designers what a document processor does for writers. They allow you to create detailed drawings, then modify lines, curves, and whole pictures.

Even if you can't draw a straight line, Macintosh can. So you'll soon be drawing sales-projection charts for your next business plan.

And for fine page design.

If you need to turn out newsletters, brochures, or even magazines, there are several Macintosh layout programs just for you. They'll put pictures exactly where you want them. And allow you to make any graphic larger or smaller, or to set headlines and text exactly the way you want them. They let you add rules or boxes, or change the leading and kerning.

And they'll even check spelling. So you can kiss those typos goodbye.

"Now tell me more."

Desktop publishing begins with one simple system. From one company: Apple.

Now we'd like to show you products from companies we're working with that make our desktop publishing even better.

Like large screens that let you lay out a whole page – or even two pages – on the screen at once.

And scanners that make it possible to put photographs, illustrations, and logos directly into your Macintosh. Where you can modify them, just as you might retouch a photograph.

Room to grow.

The thing that makes the Macintosh/ LaserWriter combo more useful than you'd ever imagine is PostScript, the industry-standard page-description language that's built right into the LaserWriter.

The Apple LaserWriter is just one of many printers that understand PostScript.

In fact, some PostScript printers are so sophisticated they aren't even called printers. They're called typesetters.

Now you're looking at a full-blown phototypesetting system, built around a Macintosh. One that will print at 2,450 dots per inch.

Think of it as driving out of a showroom in your new car, and having the salesman stop you to say, "I forgot to tell you, if you add the wings option, you can turn that car into a plane."

intosh, *he picture* *a minute.*

Now you can paste your picture onto any page of any document. To see how it looks on a two-page spread, you can use a large-screen monitor.

And to make your words and pictures print better than you ever imagined possible, just hook your Macintosh to a Linotronic phototypesetter.

"Why Apple?"

We have a confession to make.

In all the excitement of describing the beauties of Apple Desktop Publishing, we've been describing Macintosh as if there were *a* Macintosh.

There isn't. There are three. The Macintosh Plus, the Macintosh SE, and the Macintosh II. So you have a range to choose from, from basic workhorse to expandable workstation.

They're all very much alike, so once you've learned to use one, you've learned to use all three. And they're all designed to work with graphics on the screen and on the printed page as easily as ordinary computers work with words and numbers.

What's more, they all run the same software—all of which works the same basic way.

All the software commands are available on the screen. So you don't have to remember them.

All you have to remember is how to use the famous Macintosh mouse.

And although we've been busy telling you all about desktop publishing, you can also use your Macintosh to run your business when you're not busy *doing* desktop publishing. With spreadsheet programs like Microsoft Excel, data bases like Blyth's Omnis 3 or Odesta's Helix, and accounting software like Insight from Layered. So every aspect of your business can benefit.

Another confession.

Now we have one more confession to make.

We've been describing the Laser-Writer as if there were *a* LaserWriter.

Actually, there are two. The LaserWriter and the LaserWriter Plus.
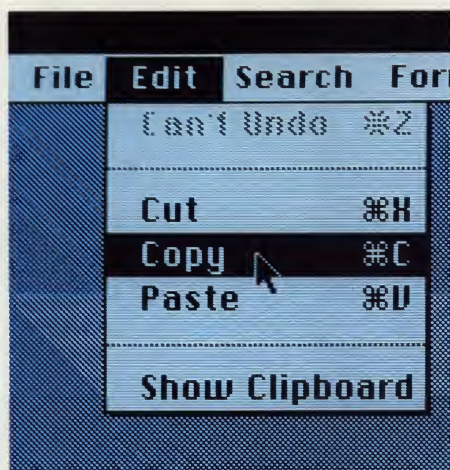
All Macintosh programs work the same basic way, so you can move parts of one document into another. Just use the pointer to select the part you want, move the pointer to the "Copy" command, open the other document, then select the "Paste" command. And there it is.

The LaserWriter comes with four built-in type families, and the Laser-Writer Plus comes with seven more. Type. Real type. Type we've licensed from typehouses like International Typeface Corporation and Allied Corporation.

If you're in the market for a desktop publishing system, this is the market. The Macintosh Plus, the Macintosh II (shown here with a SuperMac color monitor), and the Macintosh SE (shown here with a Radius Full Page Display).

Type that comes in any size, from an almost microscopic 4 points to full-page 720-point letters. Type that comes in different styles. Plain. Or fancy. Skinny. Or fat. In italics. Outlined. Or underlined.

With Apple, you get to pick.

Macintosh connects.

No desk is an island. You don't work alone. Look around your office at all the people who work together to get work out.

We did. So we made sure all Macintosh computers are on speaking terms with each other, and with LaserWriter printers. We built communications capabilities into every one.

So to make Macintosh computers communicate, all you need is an Apple-Talk® network. And for an AppleTalk network, all you need to add is AppleTalk cable and connectors. They plug together as easily as a phone plugs into a wall jack. And they conveniently connect your office's Macintosh computers to each other, and to a LaserWriter. So you can share it.

Which will make one person in your office especially happy: your controller.
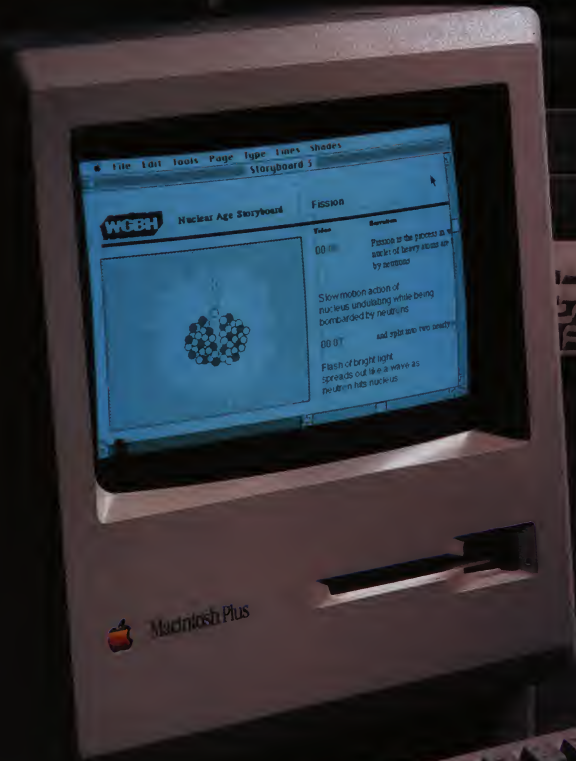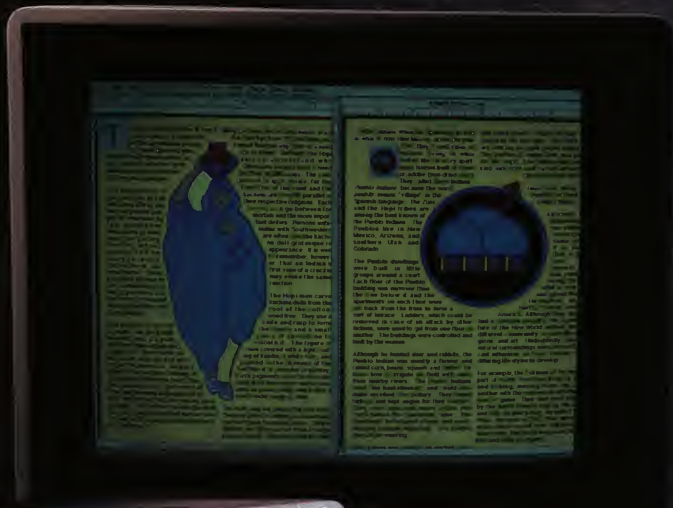
More connections.

Not only can you share your printer, you can also share ideas. With the AppleShare™ file server.

So a writer can do her writing, and send it to her editor. Who sends it on to his designer, who can put it all together with his drawings, and get it out the door. Today. On deadline. Without anybody ever having to leave his or her desk.

And with telecommunications software, such as Desktop Express, and a modem, you could even use a writer 2,000 miles away. He'd just send the story over a phone line to your editor. Who could suggest changes and get them back to the writer.

In minutes. Even last minutes.

And if you're producing an annual report, there's software to connect your Macintosh to the company mainframe. So you can get the numbers directly, instead of waiting for them to come to you.

Of course, Macintosh computers were designed to connect to other Macintosh computers. Now we've designed a way to connect them to MS-DOS computers.

All you need to do is plug an AppleTalk PC Card into your MS-DOS computer, and plug an AppleTalk connector into the card.

So your MS-DOS computers can share information with your Macintosh computers, and they can all share your LaserWriter.

Twenty-six letters doesn't seem like a lot to work with. Until you've got a LaserWriter working with Helvetica, Helvetica Narrow, Times, Palatino, ITC Avant Garde Gothic, ITC Bookman, New Century Schoolbook, ITC Zapf Chancery, ITC Zapf Dingbats, Courier, and Symbol. And if that's not enough, there's software to help you alter or create your own typefaces.

The future of desktop publishing. In your office.

In the two years since we invented desktop publishing, we've been busy making it better, faster, and easier. But we haven't ever been working alone.

Because there are a lot of incredibly dedicated companies helping to make the second generation of Apple Desktop Publishing so much better than the first that it's leaving everybody else in the silicon dust.

Now there's a *family* of Macintosh computers. With better connections, more typefaces, and more software. For writing. For presenting. For drawing. For better-designed publications.

And there's a lot more on our drawing boards. Er, on our Macintoshes.

All of which goes to show you that Apple Desktop Publishing is designed for people with high standards, tight deadlines, and tighter budgets, who have to get their reports, presentations, newspapers, newsletters, flyers, forms, and manuals off their desks, and out the door.
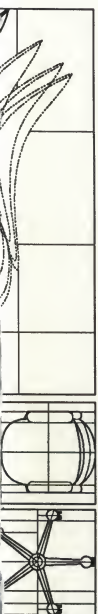
If you're one of those very busy people, we have a very simple suggestion.

Get away from your desk for awhile.

Go for a nice relaxing walk.

Have a talk with your authorized Apple representative.

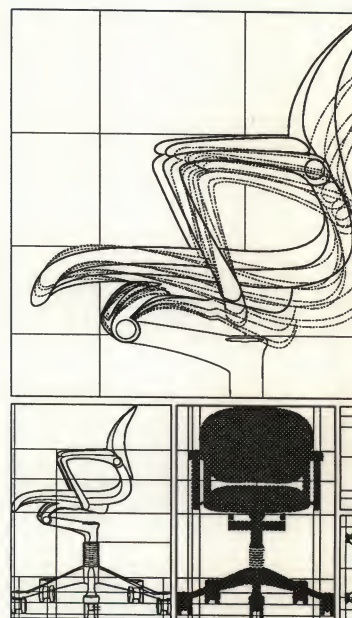And see how much *could* be accomplished back at your desk.

Throw away your drawing pens and french curves. With a Macintosh drawing program, you can draw, on the screen, anything you can draw at a drafting board. But faster. And you can change it as many times as you like.
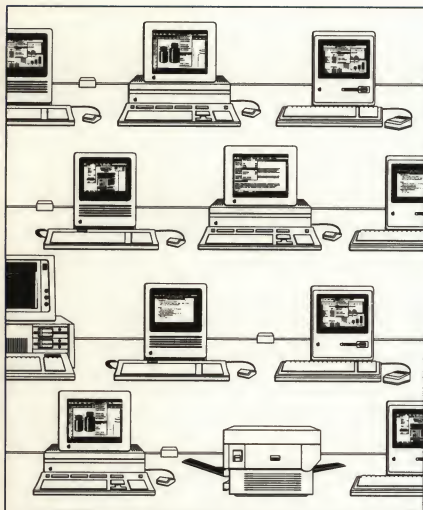
The greatest office communications invention since the telephone cord—the AppleTalk network—lets people share information and a LaserWriter.

2 ft

See for yourself.
Call your authorized Apple
Desktop Publishing specialist.

Resource

U.S. softwood lumber has been losing its market share to subsidized Canadian imports.

G-P hails lumber tariff

A proposed tariff on Canadian softwood lumber imports could boost production and employment at some Georgia-Pacific mills in the West and in other regions of the United States.

Company executives hailed the Commerce Department's preliminary decision in October to impose a 15 percent countervailing duty on Canadian lumber imports and called for even stiffer penalties. The tariff is designed to offset what the U.S. government and lumber producers claim are unfair subsidies by Canadian provincial governments.

"We are pleased that the Department of Commerce, through the International Trade Commission, has recognized that the Canadian government is subsidizing its softwood lumber industry," said T. Marshall Hahn Jr., chairman and chief executive officer of Georgia-Pacific.

"We are optimistic that the final ruling from the International Trade Commission, which is due by February 20, will support an even higher countervailing duty," he said. "The U.S. forest products industry is submitting additional facts which confirm its charges of unfair government subsidies."

Meanwhile, Harold L. Airington, the company's executive vice president of building products, said the penalty could spur growth for Georgia-Pacific in the West and other regions.

"If a permanent duty is imposed on Canadian softwood lumber by the International Trade Commission, we expect to be able to increase production at some of our sawmills," he said. "We also anticipate there will be an increase in mill jobs in the West, South and Northeast to support increased production."

> *"We also anticipate there will be an increase in mill jobs in the West, South and Northeast to support increased production."*

The center of the lumber dispute is tree-cutting, or "stumpage," policies of Canada's provincial governments, which own nearly all of that country's forests. In the United States, companies bid— often several years in advance—for the right to cut trees on government and private forests. As a result, profitability depends on accurate price forecasting.

• Newport and Toledo city councils have signed an agreement with the District 4 Council of Governments to promote economic development in the two Oregon coastal cities. The plan puts special emphasis on developing the plywood mill and surrounding property donated by G-P to the city of Toledo earlier this fall.

• Before 1986 is over, Americans will have used record amounts of plywood and lumber for a single year, predicted the leaders of two forest products trade groups. C.B. Stevens, retiring chairman of the American Plywood Association, said this year's plywood production will be 25 billion square feet—a 10 percent increase from 1985, which was the industry's previous record-high production year. Meanwhile, H.A. Roberts, president of the Western Wood Products Association, said 46.1 billion board feet of lumber will be used in the United States in 1986, the third consecutive record year for consumption.

• A new government report indicates that trees on national forests managed by the U.S. forest service are growing at only half their potential of 32 billion board feet per year. It says capturing the potential of the national forests could generate Treasury receipts of almost three times the 1986 level of $1.1 billion.

Design Solutions

Incorporating aerospace composite technologies, the frame system illustrated below should provide maximum structural integrity and still meet the stringent weight specifications. While finite element analysis will predict most of the system's mechanical properties, additional experimentation with full-scale prototypes will be needed to validate the design.

Idea 1

Kevlar Panel

PVC Foam

Connecting Module

Composite Core

Magnesium Die Casting
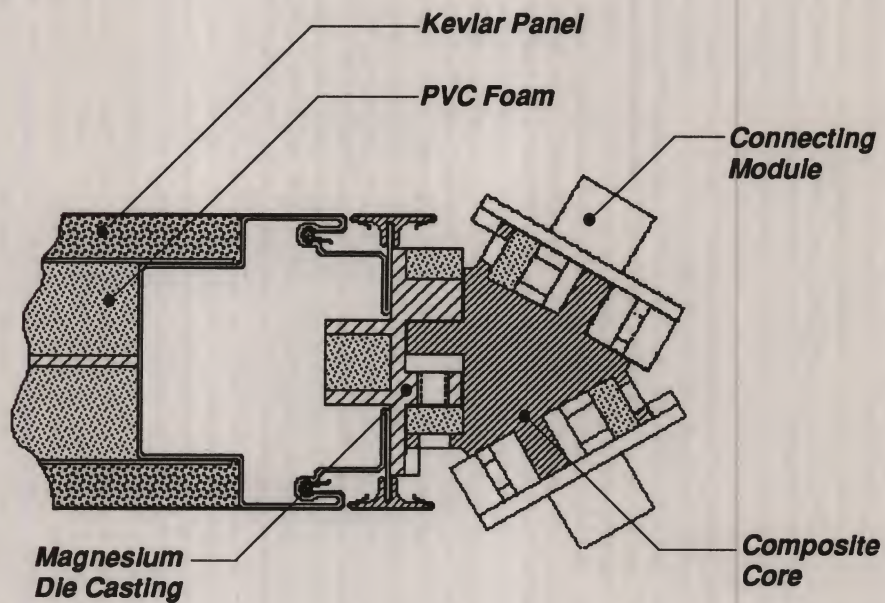
Pro:
-maximum strength-to-weight ratio
-adapts to existing mechanical components

Con:
-high material and tooling costs
-minimal track record for composite technologies
-potential UL, CSA approval problems

Unexpected bumps in the air

Pilots expect certain kinds of clouds to be bumpy. Turbulence in clear air, which is sometimes hard to forecast, can surprise them.

Diameter of vortex 900 to 1200 feet

An airplane flying into an invisible vortex is pushed up and down. A downward push can send passengers flying upward if their seat belts aren't fastened.
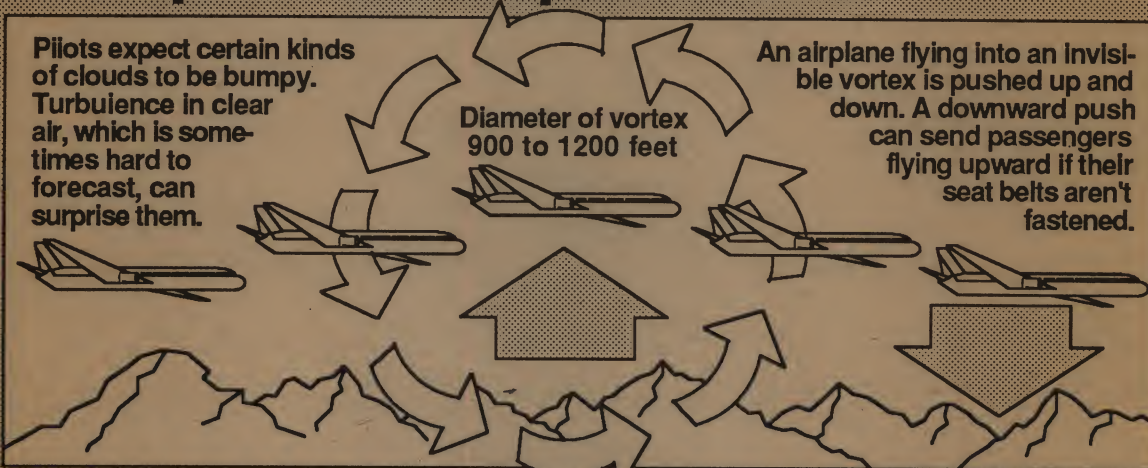
NASA researchers used readings from digital flight-data recorders on widebody jets, air traffic control radar records and weather information to develop this new picture of clear-air turbulence. It should help improve forecasts, said Rod Wingrove of NASA's Ames Research Center in Mountain View, Calif.

How it works:

Wind blowing over the top of a thunderstorm about 30,000 feet above the earth (like water flowing over rocks in a stream) forms waves, which are invisible in clear air. Mountains far below can have the same effect.

Sometimes these waves of air curl, forming a vortex after several miles.
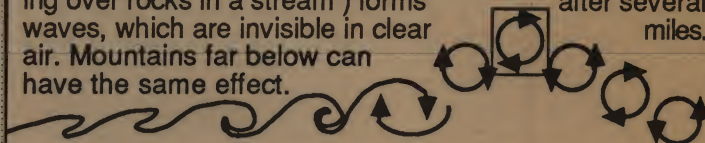
Source: National Aeronautics and Space Administration
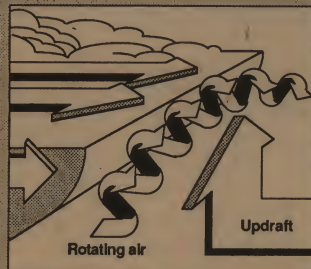
Putting the twist in tornadoes

Most thunderstorms, even vicious ones, don't produce tornadoes. Researchers have found that certain patterns of winds around the thunderstorms make the difference.

How winds start tornadoes

Fast winds

Slower winds

Rotating air

Rotating air

Updraft
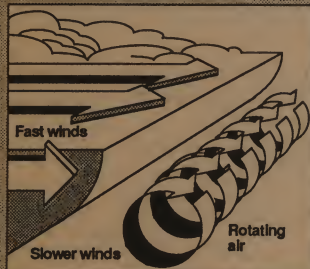
If winds high above ground are faster than ones near ground, they can create horizontal rotating columns of air about 3,000 feet in diameter.

Warm air rising into a thunderstorm lifts rotating air, making it vertical. If slowly rotating column shrinks in diameter, it speeds up, may become a tornado.

Source: Dr. John Snow, Purdue University

Storm surge

Extremely low air pressure under a hurricane causes the ocean underneath to rise. The higher tide, pushed by strong winds, forms a destructive wall of water called a storm surge.
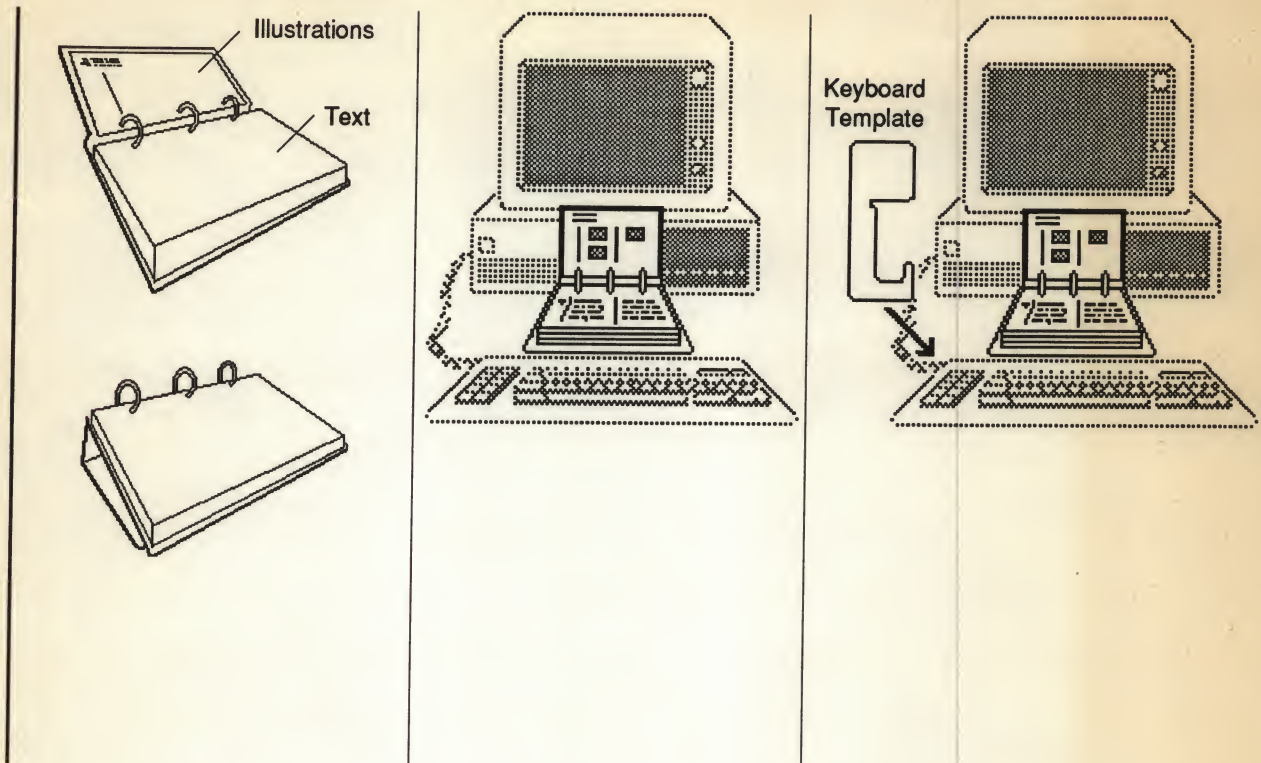
Surge tide

Winds

Sea wall
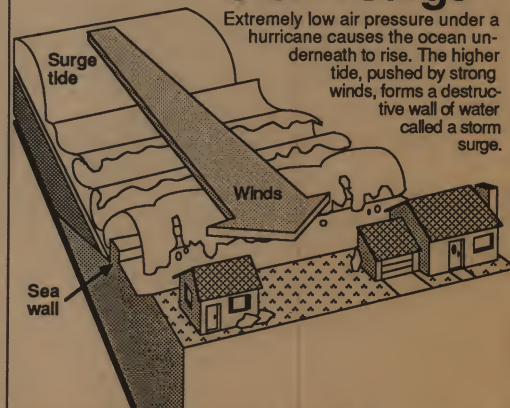
Source: Weather Services Corp.; National Ocean Service

Introduction
How To Use This MicroLink User Guide

Illustrations

Text

Keyboard
Template

Opinion | Of course, we think this User Guide provides everything you'll need to become an accomplished
MicroLink user. It is designed to be used while you are sitting at your micro.

Introduction
How To Use This MicroLink User Guide

Open the guide almost anywhere and you'll notice that the top page carries illustrations (mostly screen illustrations) while the text appears on the bottom page.

To use this guide effectively, open the front cover and fold it under the back cover. This will prop up your guide slightly and make it easier to read while you are working on your micro.

Place the opened guide directly in front of your micro so that the top page rests against your micro. As you work through the procedures, you'll be able to compare the display on your monitor with the screens as they should appear.

Remove the keyboard template from the pocket in the back of this guide and place it over the function keys on the left side of your keyboard. You are now ready to use MicroLink.
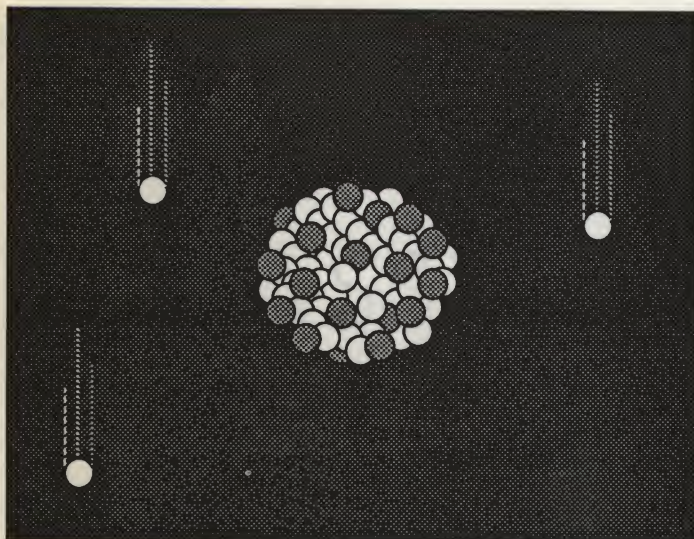
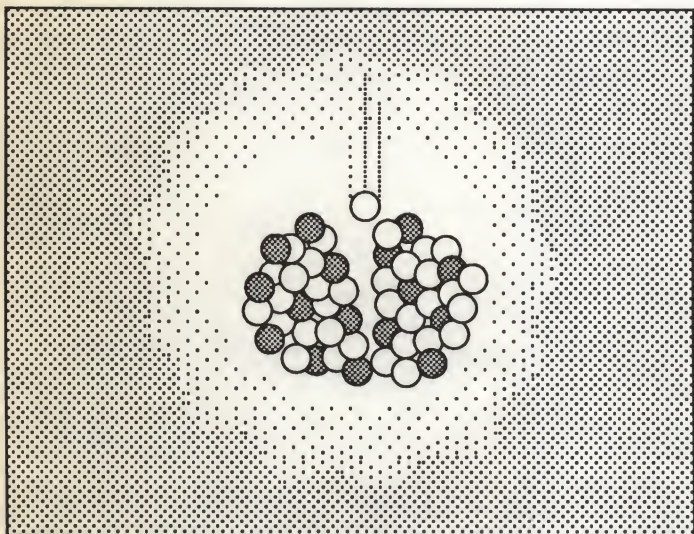micro /

Video   Narration

00:00   Fission is the process in which the nuclei of heavy atoms are bombarded by neutrons...
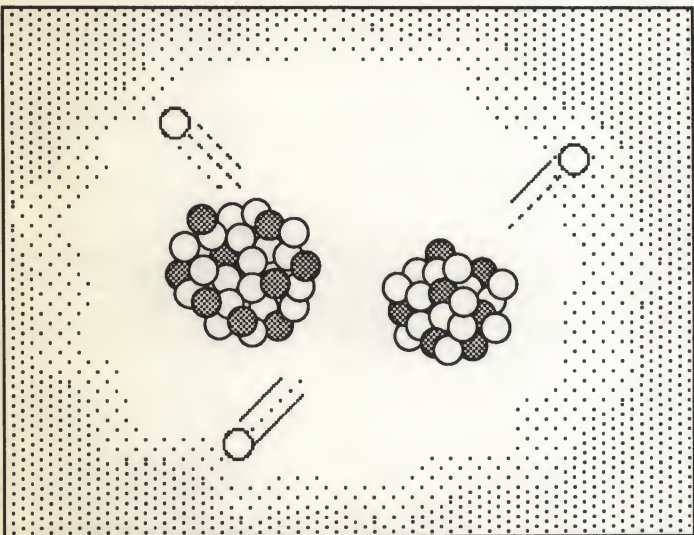
Slow-motion action of nucleus undulating while being bombarded by neutrons.

00:07   and split into two nearly equal parts...

Flash of bright light spreads out like a wave as neutron hits nucleus.

00:12   and several additional neutrons, releasing large amounts of energy.

Nucleus splits into two parts and three neutrons fly off in different directions as the flash of light spreads and gets brighter.

00:16   **End**

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Avant Garde

ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890
abcdefghijklmnopqrstuvwxyz ?!@#$%^&*()<>/

This is a sample of 12-point Avant Garde set on 2 points of leading. Avant Garde is also available in **Bold**, *Italic,* and ***Bold Italic.***

Bookman

ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890
abcdefghijklmnopqrstuvwxyz ?!@#$%^&*()<>/

This is a sample of 12-point Bookman set on 2 points of leading. Bookman is also available in **Bold,** *Italic,* and ***Bold Italic.***

Century

ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890
abcdefghijklmnopqrstuvwxyz ?!@#$%^&*()<>/

This is a sample of 12-point Century set on 2 points of leading. Century is also available in **Bold,** *Italic,* and ***Bold Italic.***

Helvetica

ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890
abcdefghijklmnopqrstuvwxyz ?!@#$%^&*()<>/

This is a sample of 12-point Helvetica set on 2 points of leading. Helvetica is also available in **Bold,** *Italic,* and ***Bold Italic.***

Palatino

ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890
abcdefghijklmnopqrstuvwxyz ?!@#$%^&*()<>/

This is a sample of 12-point Palatino set on 2 points of leading. Palatino is also available in **Bold,** *Italic,* and ***Bold Italic.***

Times Roman

ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890
abcdefghijklmnopqrstuvwxyz ?!@#$%^&*()<>/

This is a sample of 12-point Times Roman set on 2 points of leading. Times Roman is also available in **Bold,** *Italic,* and ***Bold Italic.***

NIAGARA MOHAWK
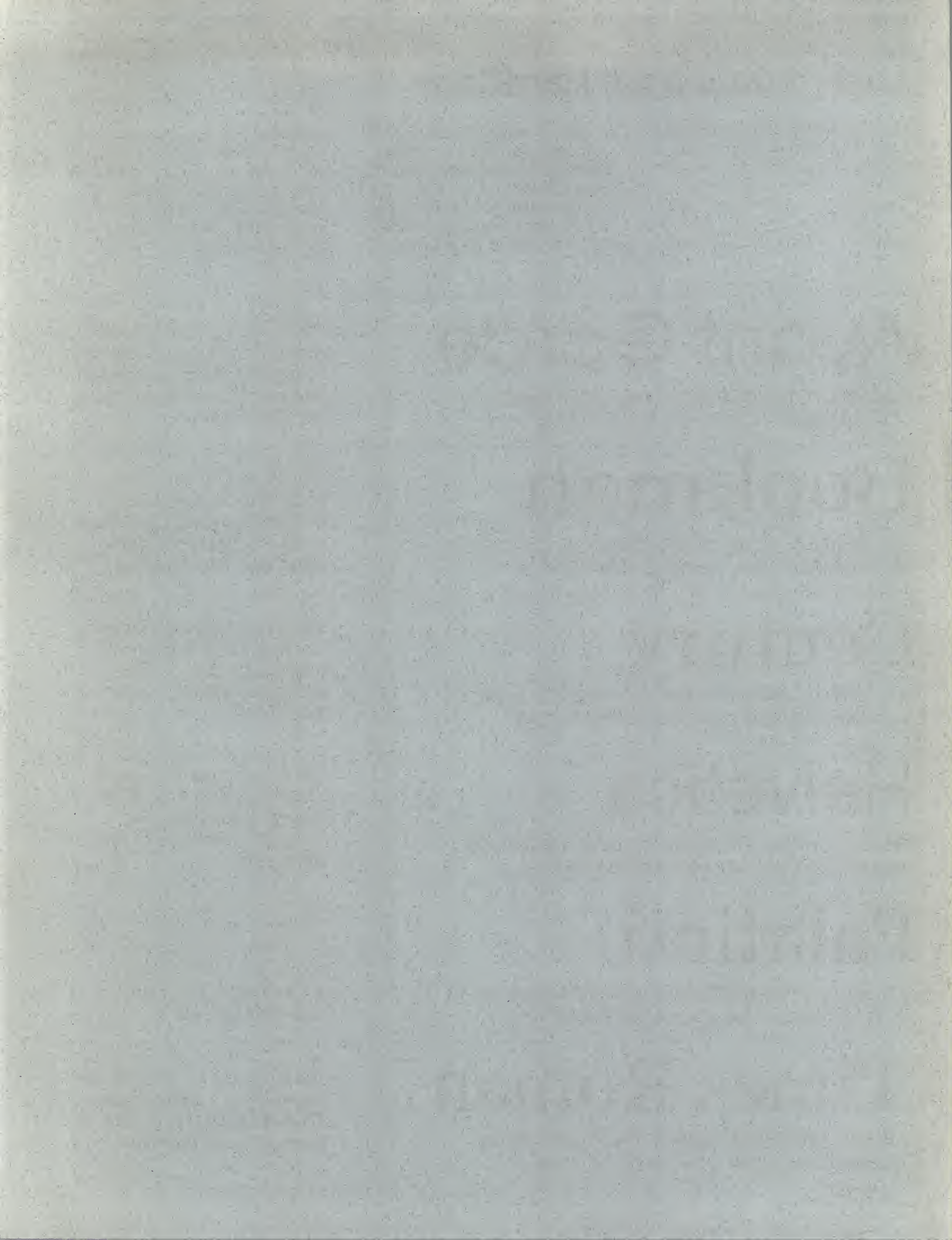
Next meter reading **Jan 20**

CAR RE SORT ** CR 09
George Smith
60 Franklin Street
Johnston, NY 12095

Bill for residential service at:
505 S. William Street
Johnstown, NY 12095

Account number:
1620 3114 004 218 4

Billing Summary

If you have questions about this bill, please call, write or come to our office nearest you:
300 Erie Boulevard West
Syracuse, NY 13202
Phone: (315) 474-5911

Electric service	$107.98
Gas service	59.65
Total charges	$167.63
Last total bill	$108.00
Payment received (thank you)	- 58.00
Balance	$ 50.00
Late payment charge ($50.00 x 1.5%)	.75
This month's budget amount	108.00
> Total amount due	**$158.75**

Budget Plan totals after this payment

Budget payments (5)	$540.00
Actual charges	-417.94
Balance to your credit	$122.06

Care & Share Energy Fund.

Help take the chill out of winter for those in need. Make a contribution to Care & Share. For every $2 you give, Niagara Mohawk will add $1. Please see enclosed insert.

For more information, call us at **474-5000**.

- -

Account number:
1620 3114 004 218 4

George Smith
60 Franklin Street
Johnston, NY 12095

Please return this section with your payment.

Make your check payable to Niagara Mohawk. If you pay in person, bring this entire bill to our office nearest you: 300 Erie Boulevard West, Syracuse, NY

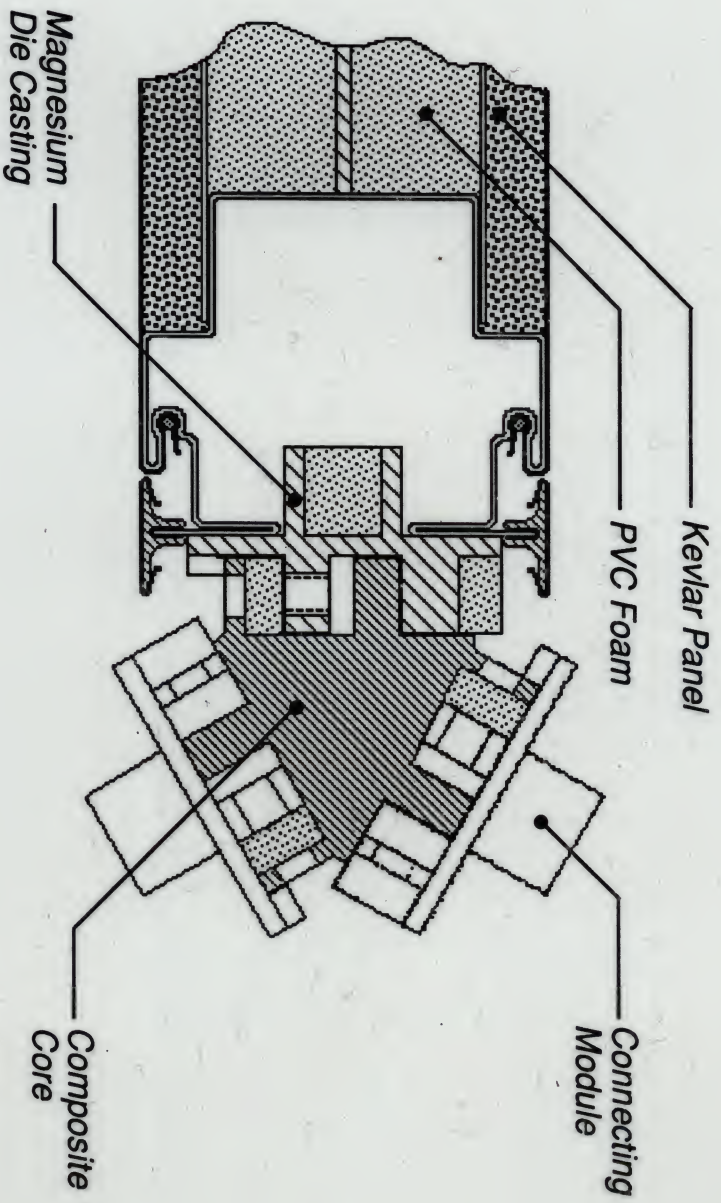*To avoid late charges, make sure we receive your payment by:*
January 2, 1986

123456789123456789123456789

> Total amount due: $158.75

Mail payment to: 300 Erie Boulevard
                              Syracuse, NY 13202

NIAGARA MOHAWK

12.345.67
987.65 4321

DAVID
KELLEY
DESIGN

Idea 1

Kevlar Panel

PVC Foam

Magnesium
Die Casting

Connecting
Module

Composite
Core